

## CLAIMS

WE CLAIM:

1. A seed planting assembly comprising:

a laterally extending tool bar;

a planting unit including a planting unit frame supported by the tool bar, wherein the planting unit frame carries:

- 5           i. a seed trench opening assembly operable to create a seed trench;  
          ii. a seed delivery assembly delivering seeds into the seed trench; and  
          iii. a seed trench closing assembly operable to close the seed trench;

10           a mounting assembly including an upper and lower support beam members pivotally linking the planting unit frame with the tool bar, wherein the mounting assembly permits the planting unit to raise and lower with respect to the tool bar;

a vertical positioner including a first linkage connected to the lower beam member, and a second linkage connected to the first linkage at a positioner joint and further in mechanical communication with the planting unit frame; and

a biasing member urging the second linkage towards the positioner joint.

2. The seed planting assembly as recited in claim 1, wherein the second linkage is connected to the upper beam member at a location between the planting unit frame and the positioner joint.

3. The seed planting assembly as recited in claim 1, wherein the first and second linkages are pivotally connected to the mounting assembly.

4. The seed planting assembly as recited in claim 1, wherein the lower beam member defines a plurality of locations spaced along the lower beam and configured to connect to the first linkage.

5. The seed planting assembly as recited in claim 1, wherein the second linkage defines a slot operable to receive an actuating lever.

6. The seed planting assembly as recited in claim 1, wherein the first linkage further comprises a stop that engages the second linkage when the planting unit is raised.

7. The seed planting assembly as recited in claim 1, wherein the second linkage is connected to the upper beam member at a second joint; and

8. The seed planting unit as recited in claim 7, wherein the biasing member is a spring.

9. The seed planting assembly as recited in claim 8, wherein a first spring terminal end is connected to a rearward end of the second linkage, and wherein a second spring terminal end is connected to the vertical positioner at a location forward from the rearward end.

10. The seed planting assembly as recited in claim 9, wherein the second spring terminal end is connected to a pin extending through the second joint.

11. The seed planting assembly as recited in claim 10, wherein an elongated groove extends through the second linkage at the second joint.

12. The seed planting assembly as recited in claim 9, wherein the first spring terminal end is connected to a flange extending outwardly from the second linkage.

13. The seed planting assembly as recited in claim 1, wherein the spring member provides a force that resists planting unit from being raised relative to the tool bar.